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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LEE, CHRISTOPHER E

ART UNIT	PAPER NUMBER
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2112

DATE MAILED: 04/13/2004

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/730,238

Applicant(s)

LEETE, BRIAN A.

Examiner

Christopher E. Lee

Art Unit

2112

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23,26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23,26 and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Receipt Acknowledgement

1. Receipt is acknowledged of the request filed on 29th of March 2004 for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on the Application No. 09/730,238, which the request is acceptable and an RCE has been established. Claims 1, 8, 12, 13 and 21 have been amended; no claim has been canceled; and claims 26 and 27 have been newly added since the Final Office Action was mailed on 24th of December 2003. Currently, claims 1-23, 26 and 27 are pending in this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 11, 12, 16 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Herwig [US 6,701,192 B1].

Referring to claim 1, Herwig discloses an apparatus (i.e., wiring Hub 100 of Fig. 3), comprising: a housing (i.e., housing 110 of Fig. 3); a power supply (i.e., Power Supply 112 of Fig. 3) enclosed in said housing (See Fig. 3); and a bus hub (i.e., Protocol Conversion & USB Hub 114 of Fig. 3) enclosed in said housing (See Fig. 3); and a downstream receptacle (i.e., cable connector between lines 136, 138 and lines 90, 94 in Fig. 3) connected to both said power supply and said bus hub (i.e., line 138 connected to Power Supply 112 and line 136 connected to Protocol Conversion & USB Hub 114 in Fig. 3), said downstream receptacle being coupled to a cable (i.e., line 136 and line 138 in Fig. 3) to couple power from said power

supply (See col. 6, lines 65-66) and data signals from said bus hub to said cable (See col. 7, lines 11-15) and to receive power and data signals from said cable (See col. 6, line 65 through col. 7, line 10).

Referring to claim 11, Herwig teaches that said power supply (i.e., Power Supply 112 of Fig. 3) further comprises an alternating current (i.e., 110V AC) to direct current (i.e., 5/12 DC) converter (See col. 6, lines 51-64).

Referring to claim 12, Herwig discloses a computing unit (i.e., retail terminal system 50 in Fig. 2), comprising: a computer (i.e., main unit 52 of Fig. 2) comprising: an upstream receptacle (i.e., cable connector between line 94 and input device 55 in Fig. 2) to deliver data signals (i.e., USB data signals) to said computer (See col. 7, lines 11-15); and a power receptacle (i.e., cable connector between line 90 and input device 55 in Fig. 2) to deliver electrical power (i.e., terminal power) to said computer (See col. 6, lines 65-67); and a power hub (i.e., wiring Hub 100 of Fig. 3) coupled to said upstream receptacle and said power receptacle via a cable (See col. 6, line 65 through col. 7, line 10), wherein said power hub (i.e., wiring Hub) comprises: a housing (i.e., housing 110 of Fig. 3); a power supply (i.e., Power Supply 112 of Fig. 3) enclosed in said housing (See Fig. 3), said power supply being coupled to said cable to provide power to said computer (See col. 6, line 65 through col. 7, line 10); and a bus hub (i.e., Protocol Conversion & USB Hub 114 of Fig. 3) enclosed in said housing (See Fig. 3), said bus hub being coupled to said cable (i.e., Protocol Conversion & USB Hub 114 of Fig. 3 being coupled to Power & LAN 90 and USB interface 94, viz., cable, in Fig. 2) to receive power (i.e., receiving Vbus power via USB interface 94 of Fig. 2) and data signals (i.e., receiving D+, D- data signals via USB interface 94 of Fig. 2) from said computer (i.e., main unit).

Referring to claims 2 and 16, Herwig teaches said bus hub (i.e., Protocol Conversion & USB Hub 114 of Fig. 3) further comprises an upstream port (i.e., port from Protocol Conversion & USB Hub 114 for line 136 in Fig. 3).

Referring to claims 3 and 17, Herwig teaches said bus hub (i.e., Protocol Conversion & USB Hub 114 of Fig. 3) comprises at least one downstream port (i.e., USB Port #1 140 and USB Port #2 142 in Fig. 3) to connect to at least one downstream device (e.g., Scanner 66 and POS Keyboard 62 in Fig. 2).

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 4, 5, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herwig [US 6,701,192 B1] as applied to claims 1-3, 11, 12, 16 and 17 above, and further in view of what was well known in the art, as exemplified by USB Specification [Universal Serial Bus Specification published by Compaq, Intel, Microsoft and NEC, Rev. 1.1., September 23, 1998; cited by the Applicant; hereinafter USB Spec].

Referring to claims 4 and 19, Herwig discloses all the limitations of the claims 4 and 19, respectively, except that does not teach said bus hub is self powered.

The Examiner takes Official Notice that said bus hub is self powered, is well known to one of ordinary skill in the art, as evidenced by USB Spec on page 136, 7.2.1.2 Self-powered Hubs.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have included said self powered bus hub in said apparatus since it would provide the advantage of driving a plurality of ports, which are limited only by the address capability of said bus hub and the local power supply (See USB Spec, 7.2.1.2 Self-powered Hubs).

Referring to claims 5 and 20, Herwig discloses all the limitations of the claims 5 and 20, respectively, except that does not teach said bus hub is bus powered.

The Examiner takes Official Notice that said bus hub is bus powered, is well known to one of ordinary skill in the art, as evidenced by USB Spec on page 135, 7.2.1.1 Bus-powered Hubs.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have included said bus powered bus hub in said apparatus since it would allow power being always available to said bus hub (See USB Spec, 7.2.1.1 Bus-powered Hubs).

6. Claims 6 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herwig [US 6,701,192 B1] as applied to claims 1-3, 11, 12, 16 and 17 above, and further in view of Urade et al. [US 6,272,644 B1; hereinafter Urade].

Referring to claims 6 and 18, Herwig discloses all the limitations of the claims 6 and 18, respectively, except that does not teach a hub repeater connected to said upstream port.

Urade discloses a USB hub 11 (Fig. 4), wherein a hub repeater (i.e., Hub Repeater 12 of Fig. 4) connected to an upstream port (i.e., Root Port 13 of Fig. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said hub repeater, as disclosed by Urade, in said bus hub, as disclosed by Herwig, so as to manage port connectivity between a selected downstream functional device and a host computer connected to said upstream port (i.e., root port; See Urade, col. 3, lines 60-62).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herwig [US 6,701,192 B1] as applied to claims 1-3, 11, 12, 16 and 17 above, and further in view of Kang [US 6,253,329 B1].

Referring to claim 7, Herwig discloses all the limitations of the claim 7 except that does not teach said power supply is coupled to supply to said bus hub.

Kang discloses a USB Hub having a self-power USB Hub (See Fig. 2), wherein a power supply (i.e., local power source unit 300 of Fig. 2) is coupled to supply to a bus hub (i.e., USB Hub 200 of Fig. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied said self-power USB Hub, as disclosed by Kang, to said power supply and said bus hub, as disclosed by Herwig, so as said power supply to supply power to said bus hub for the advantage

of providing said bus hub (i.e., USB hub) having a plurality of input power supplies (See Kang, col. 2, lines 3-10).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herwig [US 6,701,192 B1] as applied to claims 1-3, 11, 12, 16 and 17 above, and further in view of Kang [US 6,253,329 B1] and Tsai [US 6,283,789 B1].

Referring to claim 8, Herwig discloses all the limitations of the claim 8 including said cable (i.e., line 136 and line 138 in Fig. 3) comprises a computer power wire (i.e., line 138 of Fig. 4) to provide power from said power supply (i.e., Power Supply 112 of Fig. 3) to a computer (i.e., main unit 52 of Fig. 2; See col. 6, lines 65-67); and a signal wire (i.e., line 136 of Fig. 3) to carry data signals between said computer and said bus hub (See col. 7, lines 11-17), except that does not expressly teach a device power wire to provide power to said bus hub; a device ground wire; a computer ground wire; and a plurality of signal wires to carry said data signals.

Kang discloses a USB Hub having a plurality of input power sources (See Abstract and Fig. Fig. 3), wherein a device power wire (i.e., UpStream Vbus in Fig. 3) to provide power to a bus hub (i.e., USB Hub 200 of Fig. 2); a device ground wire (i.e., USB GND wire; in fact, USB UpStream Data Port in Fig. 3 inherently suggests USB GND wire according to the USB specification); and a plurality of signal wires to carry data signals (i.e., USB D+, D- signal wires; in fact, USB UpStream Data Port in Fig. 3 inherently suggests USB D+, D- signal wires according to the USB specification).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied said plurality of input power sources, as disclosed by Kang, to said apparatus, as disclosed by Herwig, so as said power supply to supply power to said bus hub for the advantage of providing said bus hub (i.e., USB hub) having a plurality of input power supplies (See Kang, col. 2, lines 3-10).

Herwig, as modified by Kang, does not expressly teach a computer ground wire.

Tsai teaches a cable (i.e., cable system 300 of Fig. 1) comprises a device power wire (i.e., wire of cable 15, which is connected to V_{bus} 1a of Fig. 4); a device ground wire (i.e., wire of cable 15, which is connected to GND 4a of Fig. 4); a computer power wire (i.e., wire of cable 16, which is connected to V_{bus} 1a of Fig. 5); a computer ground wire (i.e., wire of cable 16, which is connected to GND 4a of Fig. 5); and a plurality of signal wires (i.e., wires of cable 15, which are connected to D₋ 2a and D₊ 3a in Fig. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented said cable, as disclosed by Herwig, as modified by Kang, in said cable system, as disclosed by Tsai, for the advantage of providing a compact and clean wiring in said housing, which is a common sense to one of ordinary skill in the art of electronics wiring.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herwig [US 6,701,192 B1] in view of Kang [US 6,253,329 B1] and Tsai [US 6,283,789 B1] as applied to claim 8 above, and further in view of Decuir [US 5,781,028 A].

Referring to claim 9, Herwig, as modified by Kang and Tsai, discloses all the limitations of the claim 9 except that does not teach said plurality of signal wires further comprises a signal twisted pair. Decuir discloses a system for a switched data bus termination (Fig. 6), wherein a plurality of signal wires (i.e., USB data signal wires in Fig. 6) comprises a signal twisted pair (i.e., twisted pair data cable 72 of Fig. 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said twisted pair cable, as disclosed by Decuir, for said signal wires, as disclosed by Herwig, as modified by Kang and Tsai, for the advantage of supporting high speed version of USB (See Decuir, col. 5, lines 5-7).

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herwig [US 6,701,192 B1] in view of Kang [US 6,253,329 B1] and Tsai [US 6,283,789 B1] as applied to claim 8 above, and further in view of Sanchez [US 6,446,867 B1].

Referring to claim 10, Herwig, as modified by Kang and Tsai, discloses all the limitations of the claim 10 except that does not teach said plurality of signal wires further comprises a fiber optic channel. Sanchez discloses an electro-optic interface system (Fig. 2A), wherein a plurality of signal wires (i.e., a plurality of optical links in Fig. 2A), which are driven by a laser module 250 (Fig. 2A) and a photo detector 260 (Fig. 2A), comprises a fiber optic channel (i.e., optical channel of Fiber Optic Cable 135 in Fig. 2A).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said fiber optic channel with its driver, as disclosed by Sanchez, for signal wires, as disclosed by Herwig, as modified by Kang and Tsai, for the advantage of providing an electro-optic system of operation for communicating high speed digital signals between two or more electronic systems (See Sanchez, col. 1, lines 57-60) without spreading electromagnetic noise, which is well known to one of ordinary skill in the art of fiber optical communication.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herwig [US 6,701,192 B1] as applied to claims 1-3, 11, 12, 16 and 17 above, and further in view of Tsai [US 6,283,789 B1].

Referring to claim 13, Herwig discloses all the limitations of the claim 13 including said cable (i.e., Power & LAN 90 and USB interface 94, viz., cable, in Fig. 2) comprises a device power wire (i.e., Vbus power wire on USB interface 94 of Fig. 2) to provide power from said computer to said bus hub (i.e., bus power on USB interface 94 of Fig. 2); a device ground wire (i.e., GND wire on USB interface 94 of Fig. 2); a computer power wire (i.e., Power & LAN 90 of Fig. 2) to provide power from said power supply to said computer (i.e., main unit 52 of Fig. 2; See col. 6, lines 65-67); and a plurality of signal wires (i.e., D+, D- data signal wires on USB interface 94 in Fig. 2) to carry data signals (i.e., USB data signals) between said computer and said bus hub (See col. 7, lines 11-17), except that does not expressly teach a computer ground wire.

Tsai teaches a cable (i.e., cable system 300 of Fig. 1) comprises a device power wire (i.e., wire of cable 15, which is connected to V_{bus} 1a of Fig. 4); a device ground wire (i.e., wire of cable 15, which is connected to GND 4a of Fig. 4); a computer power wire (i.e., wire of cable 16, which is connected to V_{bus} 1a of Fig. 5); a computer ground wire (i.e., wire of cable 16, which is connected to GND 4a of Fig. 5); and a plurality of signal wires (i.e., wires of cable 15, which are connected to D₋ 2a and D₊ 3a in Fig. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented said cable, as disclosed by Herwig, in said cable system, as disclosed by Tsai, for the advantage of providing a compact and clean wiring in said housing, which is a common sense to one of ordinary skill in the art of electronics wiring.

12. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herwig [US 6,701,192 B1] in view of Tsai [US 6,283,789 B1] as applied to claim 13 above, and further in view of Decuir [US 5,781,028 A].

Referring to claim 14, Herwig, as modified by Tsai, discloses all the limitations of the claim 14 except that does not teach said plurality of signal wires comprises a twisted pair.

Decuir discloses a system for a switched data bus termination (Fig. 6), wherein a plurality of signal wires (i.e., USB data signal wires in Fig. 6) comprises a twisted pair (i.e., twisted pair data cable 72 of Fig. 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said twisted pair cable, as disclosed by Decuir, for said signal wires, as disclosed by Herwig, as modified by Tsai, for the advantage of supporting high speed version of USB (See Decuir, col. 5, lines 5-7).

13. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herwig [US 6,701,192 B1] in view of Tsai [US 6,283,789 B1] as applied to claim 13 above, and further in view of Sanchez [US 6,446,867 B1].

Referring to claim 15, Herwig, as modified by Tsai, discloses all the limitations of the claim 15 except that does not teach said plurality of signal wires comprises a fiber optic channel.

Sanchez discloses an electro-optic interface system (Fig. 2A), wherein a plurality of signal wires (i.e., a plurality of optical links in Fig. 2A), which are driven by a laser module 250 (Fig. 2A) and a photo detector 260 (Fig. 2A), comprises a fiber optic channel (i.e., optical channel of Fiber Optic Cable 135 in Fig. 2A).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said fiber optic channel with its driver, as disclosed by Sanchez, for signal wires, as disclosed by Herwig, as modified by Tsai, for the advantage of providing an electro-optic system of operation for communicating high aped digital signals between two or more electronic systems (See Sanchez, col. 1, lines 57-60) without spreading electromagnetic noise, which is well known to one of ordinary skill in the art of fiber optical communication.

14. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herwig [US 6,701,192 B1] in view of Tsai [US 6,283,789 B1].

Referring to claim 21, Herwig discloses a cable (i.e., Power & LAN 90 and USB interface 94, viz., cable, in Fig. 2) comprising: a device power wire (i.e., Vbus power wire on USB interface 94 of Fig. 2) to provide power from a computer (i.e., main unit 52 of Fig. 2) to a power hub (i.e., wiring Hub 100 of Fig. 2; in fact, bus power on USB interface 94 of Fig. 2); a device ground wire (i.e., GND wire on USB interface 94 of Fig. 2); a computer power wire (i.e., Power & LAN 90 of Fig. 2) to provide power from said power hub to said computer (i.e., main unit 52 of Fig. 2; See col. 6, lines 65-67); and a plurality of signal wires (i.e., D+, D- data signal wires on USB interface 94 in Fig. 2) to carry data signals (i.e., USB data signals) between said computer and said power hub (See col. 7, lines 11-17), except that does not expressly teach a computer ground wire.

Tsai teaches a cable (i.e., cable system 300 of Fig. 1) comprises a device power wire (i.e., wire of cable 15, which is connected to V_{bus} 1a of Fig. 4); a device ground wire (i.e., wire of cable 15, which is connected to GND 4a of Fig. 4); a computer power wire (i.e., wire of cable 16, which is connected to V_{bus} 1a of Fig. 5); a computer ground wire (i.e., wire of cable 16, which is connected to GND 4a of Fig. 5); and a plurality of signal wires (i.e., wires of cable 15, which are connected to D₋ 2a and D₊ 3a in Fig. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented said cable, as disclosed by Herwig, in said cable system, as disclosed by Tsai, for the advantage of providing a compact and clean wiring in said housing, which is a common sense to one of ordinary skill in the art of electronics wiring.

Referring to claim 22, Tsai teaches an upstream plug (i.e., B connector 20 and 21 in Fig. 1) to connect to both an upstream bus receptacle and a power receptacle (i.e., peripheral device port system 100 of Fig. 6), wherein said power receptacle draws electric power from said computer power wire (See col. 3, lines 59-63; i.e., wherein in fact that delivering extra power to the peripheral device port system implies said power receptacle draws electric power from said computer power wire).

Referring to claim 23, Tsai teaches a downstream plug (i.e., A connector 10 and 11 in Fig. 1) to electrically connect to both a downstream bus receptacle and a power receptacle (i.e., main device port system 200 of Fig. 7), wherein said power receptacle is to supply electric power to said computer power wire (See col. 3, lines 59-63; i.e., wherein in fact that delivering extra power to the peripheral device port system implies said power receptacle is to supply electric power to said computer power wire), and wherein said downstream bus receptacle is connected to said device power wire, said device ground wire, and said plurality of signal wires (See col. 4, lines 1-11; i.e., wherein in fact that power and data are transmitted by the first cable (e.g., USB cable) between the first port and one of the two ports on peripheral device port system implies said downstream bus receptacle is connected to said device power wire, said device ground wire, and said plurality of signal wires).

15. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herwig [US 6,701,192 B1] in view of Tsai [US 6,283,789 B1] as applied to claims 21-23 above, and further in view of Decuir [US 5,781,028 A].

Referring to claim 26, Herwig, as modified by Tsai, discloses all the limitations of the claim 26 except that does not teach said plurality of signal wires comprises a twisted pair.

Decuir discloses a system for a switched data bus termination (Fig. 6), wherein a plurality of signal wires (i.e., USB data signal wires in Fig. 6) comprises a twisted pair (i.e., twisted pair data cable 72 of Fig. 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said twisted pair cable, as disclosed by Decuir, for said signal wires, as disclosed by Herwig, as modified by Tsai, for the advantage of supporting high speed version of USB (See Decuir, col. 5, lines 5-7).

16. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herwig [US 6,701,192 B1] in view of Tsai [US 6,283,789 B1] as applied to claims 21-23 above, and further in view of Sanchez [US 6,446,867 B1].

Referring to claim 27, Herwig, as modified by Tsai, discloses all the limitations of the claim 27 except that does not teach said plurality of signal wires comprises a fiber optic channel.

Sanchez discloses an electro-optic interface system (Fig. 2A), wherein a plurality of signal wires (i.e., a plurality of optical links in Fig. 2A), which are driven by a laser module 250 (Fig. 2A) and a photo detector 260 (Fig. 2A), comprises a fiber optic channel (i.e., optical channel of Fiber Optic Cable 135 in Fig. 2A).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said fiber optic channel with its driver, as disclosed by Sanchez, for signal wires, as disclosed by Herwig, as modified by Tsai, for the advantage of providing an electro-optic system of operation for communicating high speed digital signals between two or more electronic systems (See

Sanchez, col. 1, lines 57-60) without spreading electromagnetic noise, which is well known to one of ordinary skill in the art of fiber optical communication.

Response to Arguments

17. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Laity et al. [US 6,697,892 B1] disclose port expansion system.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher E. Lee whose telephone number is 703-305-5950. The examiner can normally be reached on 9:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H. Rinehart can be reached on 703-305-4815. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cel/ 

Christopher E. Lee
Examiner
Art Unit 2112


Glenn A. Auve
Primary Patent Examiner
Technology Center 2100